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EDUCATION IN MAINE.

About one year ago, (see Journal for 1846, No. 18,) we noticed, with warm expressions of pleasure, the then recent movement in behalf of education in the State of Maine. As the first fruits of that movement, we have before us a pamphlet of 135 pages, consisting of the First Report of the Board of Education, then established; the general Report, together with the special Report on schoolhouses, of the Secretary of the Board, Wm. G. Crosby, Esq., of Belfast, and several special reports made by committees of the Board; — on Education in the New Settlements; on the Qualification and Education of Teachers; on Moral Instruction, &c.

These several reports are well-written, business-like documents. They exhibit, concisely and forcibly, those arguments in favor of a more enlarged education of the people, which, with all intelligent men, are now becoming common-place, but which must be repeated again and again, until the *conduct* of the community shall conform to its *convictions*, until its *acts* shall correspond with its *knowledge*. We must not cease to enjoin duties because they are already familiar to men's ears; but we must urge them, until they find a lodgement in men's hearts, and their living efficacy is evinced in conduct. When duties are performed, their inculcation may be forborne.

The several reports embodied in this document remind us strongly of the condition of things during the earlier years of the Massachusetts movement. To read them, therefore, is living our old experience over again. The same difficulties which we then encountered are here deplored; — ten-foot schoolhouses; ten-acre districts; irregular attendance, almost degenerating into regular absence; apathy of parents stiffening into asphyxia; wages that would make a miser chuckle; schools visited, not by the actual presence of committees, but by clairvoyance, if at all; the pulseless, comatose state of no inconsiderable number of self-called and self-satisfied teachers; — these, and things like these, are brought vividly to mind by reading the *first report* of the Maine Board of Education.

But a good work has been well begun. The field is now fairly entered. Enough of it has been explored to show that it contains some fertile spots, some deserts, and some jungles. The fertile places will welcome cultivation; but when the hiding-places of old iniquities are laid open, there will be some croaking, some hissing, and some growling among the unclean things that inhabit them. No matter. Let their recesses be laid open,—gently but fearlessly; and let the hand of reform remove what it cannot correct. The ten coming years are destined to see a greater change in Popular Education, throughout all the Northern States of the Union, than has been effected in any previous century; and in this march may Maine not be a laggard.

The Board say, "While we feel highly honored that so sublime a work has been assigned to us, we cannot but deeply feel the difficulty and the delicacy of the task of originating and suggesting measures to restore the institution committed to our care to its former vigor and efficiency. Having, however, accepted the offices to which we were elected, we cannot forget that we have thereby become the sworn trustees of the rights and destiny of those who now, indeed, cannot speak for themselves, but whom the fast-coming future will place in a position to call us to a strict account. Under the deep impression of this responsibility, we must plainly, though respectfully, state to the authorities of the State our opinion of the duties which now devolve upon them. The existence of this Board, and, indeed, the whole system of public education, is in the hands of the Legislature. They can by their breath destroy both. But, if they mean that the Board shall continue and be efficient, and that the system shall exist and be improved, they cannot do otherwise than enact those laws, and make those appropriations, without which any real and permanent improvement is impossible."

The following is the closing paragraph of Mr. Crosby's report:—

"The success which has thus far attended the recent effort in this State, to direct attention to the most prominent defects in the administration of our Common School system, and arouse the public mind to a consciousness of the necessity of reform, of prompt and efficient action, affords matter for congratulation. To the faithful few, who, for years past, through good and evil report, have manfully upheld the good cause, too great a share of praise cannot be awarded. It was from their unwearied efforts that the friends of education in convention at Augusta, in the month of January, 1846, derived encouragement and assurance to address the representatives of the people in behalf of the free school. The promptness with which the memorial of that convention was met and answered, the unanimity with which the bill, reported in compliance with the prayer of the

memorialists, passed the Legislature, reflect honor alike upon the individuals composing it, and the State whose interests they represented, and is a happy augury for the future. But having done so much, the danger that individual effort may be relaxed, that to this Board may be confided the achievement of that reform which can be effected only by the coöperation of the people, is neither to be overlooked nor concealed. Against this error, which, if persisted in, cannot but prove fatal to the cause in which we are engaged, the voice of earnest expostulation must be raised ; and the assurance, again and again reiterated, that, be the members of this Board faithful and indefatigable as they may, though they offer up their time and substance as a sacrifice, though they speak with the tongues of men and angels, yet that, without the coöperation of the people, their labors in this behalf must be in vain. The people must come to the rescue ! The legislator, the capitalist, the man of letters, must enlist for life, and take their places in the ranks of the great army of progress. And where, if not there, should they be found ? How can the legislator more faithfully subserve the interests of his constituents, and more effectually protect their rights, than by providing the means of education for their children ? What surer guaranty can the capitalist find for the security of his investments, than is to be found in the sense of a community morally and intellectually enlightened ? And how can the man of letters more faithfully fulfil his mission, than in teaching the people ? The press,—than which there is no mightier agent in giving a character to the age,—the press must speak ! speak, too, not in the low mutterings of the distant thunder, which tells of danger remote, but in the crashing peal which breaks over our heads. The pulpit must speak ! Its voice of warning and of exhortation must be lifted up ;—this “bread of life” must cease to be the “show bread” of the sanctuary,—it must be broken for the people. In the council chamber of the State, in the halls of legislation, in the lyceum, in the scenes of social intercourse and public debate, in the house of God, and in the village schoolhouse, must the voices of true-hearted men be heard, until, touched by the electric spark, the dark and lowering cloud which now hangs over us shall burst, and its waters descend, to refresh and fertilize a parched and barren soil ;—until this people, this whole people, shall be aroused to a consciousness of their duties and their dangers. Then, and not until then, will the free school of Maine fulfil its mission.”

The following extracts are from the special report of the committee on Moral Instruction :—

“ It may be objected, that the thorough course of moral instruction, enjoined by the law, would interfere with other studies. This, we think, is a mistake. Those teachers who most successfully enforce the precepts of morality, are, usually,

the most successful in promoting the intellectual advancement of their scholars. And the reason is evident. Morality is the parent of order; and order is indispensable to intellectual success.

"Besides, morality need not be taught by lengthy, formal lectures; it should rather be the element in which the scholars should live, and move, and have their being. It should be seen in the elevated, and pure, and amiable example of the teacher. It should pervade every book they read. Every character brought before them, every incident that occurs, may afford opportunity for brief but profitable remark. Let the teacher highly appreciate moral excellence, — let his feelings be warmly interested in the moral advancement of his scholars, — and he will easily and pleasantly, because spontaneously, make his school the school of virtue, as well as of knowledge.

"In addition to the careful exclusion of all books from the school, except those of a pure and elevated character, the Bible, as containing the purest morality, sanctioned by the highest authority, and exhibiting the only perfect example of whatever is excellent and lovely, and of good report, should daily be read in our schools; thus rendering our youth familiar with its truths, and impressing its precepts and principles on their hearts.

"It will be evident, when we consider the objects contemplated by our laws in the education of youth, that it requires choice men to be instructors, — men ripe in virtue as they should be thorough in scholarship, — as capable of moulding the heart, as of directing the understanding. Nor can we deny, that, tried by the law, — the only proper standard, — many who have engaged in this work would be required to resign. Nor would this be a calamity. Our most precious treasure is our youth; and on their moral and intellectual character the most valuable interests depend; we cannot give them up into unskilful and unworthy hands. The office of teacher is one of the most important that man can assume; and those who sustain it should, by their learning, and wisdom, and virtue, command the respect of an intelligent community; such that youth and age may alike reverence, while the State may regard them as the most honorable and useful of its members."

The Legislature has empowered the Board to hold Institutes, and has appropriated a sum not exceeding two hundred dollars to defray the expenses of each.

It is said that a town superintendent, in the State of New York, in examining a candidate for a public school, selected a problem from an arithmetic, and directed the candidate to dis-solve it, on the black-board.

THE FAMILY AND SCHOOL MONITOR,

Is the title of a well-executed lithographic chart, about three feet six inches in length and two feet eight inches in breadth, prepared by James Henry, Jun. Esq., an able and devoted champion of education in the State of New York.

The chart represents a Tuscan portico, of four columns, which may be considered as the emblem of an enlightened commonwealth. At the bases of the four columns are vignettes representative of some of the leading ideas and agents of the present age. They are Justice, the Printing-Press, the Steam-Engine and Electric Telegraph, and Liberty. The *local* order of arrangement conforms to the *natural*, which is this; Justice is on the left, and Liberty on the right; and the steps from Justice to Liberty are through the Printing-Press, and the Steam-Engine and Telegraph, which are the symbols of Knowledge, Labor, and rapid Intercommunication. Justice, united with Knowledge, Labor, and Intercourse, naturally evolves Liberty. The inscriptions upon the columns represent the great interests of life, both material and spiritual, and the means by which they are upheld.

Upon the frieze are inscribed the words FAITH, HOPE, and CHARITY.

The beautiful motto of the State of New York, "EXCELSIOR," (which, being interpreted, means HIGHER,) appears in large capitals upon the pediment. This noble motto should be adopted by every individual, state, and nation in the world; for, however filled and crowded the space may be *around* us, there is always empty space enough *above* us, into which we can ascend without obstruction.

Over this motto is placed the symbol of the All-seeing Eye. This is well. Consciously or unconsciously, the idea, "Thou, O God, seest us," should be as ever present to the living soul, as the images of external objects are to the retina of the opened eye.

We have no very definable objection to the introduction and superposition, over this emblem of Omnipotence, of the maxim, "Order is Heaven's first law;" but we must confess and avow, that the picture of the huge, outspread, American Eagle, astride the peak of the roof, high above all these impressive symbols of energy and goodness, of eternity and supremacy, and over the Maker and Arbiter of them all too,—the most conspicuous object on the scene,—is not to our taste. It looks too much as though he were the statue, and all the rest were but his pedestal. As his enormous "sail-like vans" are spread out ready for flight, we hope he will soon use them in descending to some more modest and appropriate position.

The three spaces, between the four columns, are filled with,

1. "Maxims in Physical Education;" 2. "Maxims in Moral Education;" and, 3. "Maxims in Intellectual Education." Of the first class, there are *six*, of the second *eight*, and of the third *nine*. We should be glad to copy all these maxims; but perhaps this would be taking too great a liberty with the author's work. We shall confine ourselves to a specimen of each class.

The sixth maxim in Physical Education is, "*I must know accurately and observe strictly the laws of cleanliness.*" Nature abhors every species of impurity, and throughout the Holy Scriptures the duty of cleanliness is frequently and positively enjoined. More than one half of the substances taken into the system pass out of it through the pores of the skin, in what is called Insensible Perspiration. This fact requires that the entire surface of the person should be thoroughly washed, and rubbed dry with a coarse towel, once in each week; and if this ablution should be performed daily, the effect would be still better. [We think our author, here, too latitudinarian. *Daily* ablution is indispensable to cleanliness and decency.] This may be neatly and comfortably done with a foot-tub, common pitcher, bowl, sponge, and towel. The clothing should be changed and washed often. Two sets of under garments, one for the day and one for the night, should be constantly used. The feet and hands should be washed daily, and the mouth ought to be rinsed and the teeth cleaned with cold water before going to bed at night, on rising in the morning, and immediately after each meal. A bathing apparatus ought to be regarded as necessary as cooking utensils in every family. Children of both sexes ought to be taught to swim. Health, beauty, and the preservation of life, require that this art should be made an indispensable branch of education. Every individual ought to be scrupulously neat in person and apparel; and whether at home or abroad, in a dwelling, a schoolhouse, a church, a capitol, an inn, a ship, steamboat, packet-boat, railroad car, or office of any description, cleanliness should be a rule, fixed and unalterable as the laws of the Medes and Persians."

From the maxims in Moral Education, we select the seventh. "*I must always be mindful of the influence of example.*" That like produces like, is an invariable law throughout the physical, moral, and intellectual world. It holds true through every gradation of virtue, and in all the degrees of vice. In no other country will right example do as much good, and wrong example as much evil, as in the United States; because in no other country are the liberty and ability to imitate so great. Every action of our lives seems momentous, when we reflect that, in its immediate and remote consequences, it may affect for evil or for good the characters of millions of our fellow-beings."

From the maxims in Intellectual Education, we select the first and eighth. "*I must assiduously and perseveringly cultivate my intellect.*" The Christian worships a God of intelligence, as

well as of love; and exalted piety requires no less the cultivation of the intellect than the purity and warmth of the affections."

"*I must be regular and persevering in intellectual labor.*" What exercise is to the body, thought is to the intellect. Untiring industry and perseverance are the most certain means of success in every department of life. Where genius alone has succeeded once, industry has succeeded a thousand times. Ordinary endowments, with well-directed and constant application, win the great prizes of life. The ability of labor is given to all, genius is granted to but few. It was not genius, but industry, which made Franklin and Washington the pride and glory of our race, and fit models for imitation to all succeeding generations."

We hope the above account will give to school committees and teachers a sufficiently favorable idea of Mr. Henry's chart to induce them to ornament their schoolrooms with it. They will find that it contains many a good text for a lecture. If Education is represented under the type of an edifice supported by columns, every child can see what ruin would befall the whole structure, if either one of its pillars should be removed, or suffered to decay.

PURSUIT OF KNOWLEDGE UNDER DIFFICULTIES.—The following is a most remarkable and praiseworthy instance of what perseverance and industry, rightly directed, are able to effect. Among the graduating class at the last Commencement at Williams College, was one by the name of Condit, from New Jersey. This gentleman is a shoemaker, is married, and has a family of four children. Six years ago, becoming sensible of the blessings of an education, he commenced learning the simple branches, such as are taught in our primary schools. One by one, as he sat on his shoemaker's bench, he mastered grammar, arithmetic, geography, &c., with some occasional assistance from his fellow-workmen. At this time he determined to obtain a collegiate education. Without means, and with a large family depending on him for support, he commenced, and learned Latin and Greek, in the evenings, after his day's labor was over, under the direction of a friend; and, after the lapse of a year and a half, prepared himself, and entered the Sophomore class of Williams College. He brought his bench and tools, as well as his books, with him. The students supplied him with work; the faculty assisted him; and, aided by the fund for indigent students and some occasional assistance from other sources, he was enabled to go through the college course, and, at the same time, to support his family. He graduated on his birthday, aged thirty-two. He stood high in his class, and received a part at Commencement, but declined speaking. At the farewell meeting of the class, in considera-

tion of his perseverance, talents, and Christian character, they presented to his wife an elegant set of silver spoons, tea and table, each handsomely engraved with an appropriate inscription.

Mr. Condit will now enter the Theological Seminary at New York, and will, no doubt, make a faithful and popular minister.

What young man in this country will ever, after such an example as this, despair of obtaining an education?

DIETETICS. — The philosophy of eating is a much neglected, but very useful and interesting study. The legitimate purpose of taking food into the stomach is to supply the brain, spinal marrow, nerves, muscles, bones, lungs, liver, and other organs, with aliment appropriate to each tissue, and furnish suitable fuel to be consumed in the system, and keep up a uniform temperature of the body at about ninety-eight degrees. A large portion of the diseases which now so painfully afflict civilized communities, might be prevented by never eating nor drinking too much of any thing, and always giving to the circulating blood its appropriate elements in *due proportion*, to repair the constant waste of every part of the body. Animal life can only be maintained by the consumption of organized matter, which owes its organism to vegetable vitality. If there were no plants on the earth, there could be no animals. The former alone are endowed with the power of organizing crude minerals, like salts, water, and air, into food for animals. The light and heat given out in burning one hundred pounds of corn, or other organized matter, were imbibed from the light and heat of the sun, at the time the corn or other plants grew. No vegetable or animal substance, whether consumed in the furnace of an iron locomotive, or in a locomotive man, can emit a particle more of heat than was taken up and rendered latent, at the time carbon, nitrogen, and the elements of water, were organized in the development of the germ of some plant. In selecting the flesh of herbivorous animals, and the seeds, fruits, and tubers of plants, for human food, there is room for the exercise of much wisdom in choosing the organized matter best adapted to meet the peculiar wants of the brain and nerves, the muscles and bones, as well as the breathing process, which often suffers sadly from some defect in the fuel that should keep the human locomotive in a sound condition and healthy motion. Our daily food should be carefully selected and prepared, with reference to the daily wants of each organ and tissue in the system. It should never contain too much or too little starch, sugar, butter, or fat, nor too much or too little gluten, albumen, casein, or other substance that abounds in nitrogen, sulphur, and phosphorus. Appetite, the senses of taste and smell, and instinct, are worth something as guides in selecting suitable nourishment. But these advantages do not supersede the necessity of cultivated reason, of science, in directing aright the nutrition of the human brain and nerves,

which are at once the highest expression of organized matter, and, as the organs of feeling, thought, and conscience, the most liable to derangement. Weakness of brain and feebleness of intellect, as well as defective digestion, imperfect respiration, and muscular lassitude, often arise from the use of improper food. Judicious exercise, or suitable manual labor, can do much toward imparting both health and strength to the physical man. But neither bodily nor mental toil can transform food which is constitutionally defective into that which contains all the nutritive elements in due proportion. Physical labor is good for the great purpose that God designed it. It cannot, however, perform the function of enlightened reason. For the investigation of the laws of health, and for its preservation, that each bone, muscle, nerve, and tissue, may have just what it needs, man's intellectual powers must be called into active exercise.

Grind a bushel of wheat, and use for making bread only the very white, superfine flour, and you get little beside the *starch* in the grain, losing most of the muscle and brain forming elements in the "middlings." It is in the latter that the chemist finds most of the gluten, bone earth, sulphates, and chlorides. As the stomachs of all the higher order of animals contain hydrochloric acid in some form, (one of the elements of common salt,) the separation of this in bolting makes the bread of superfine flour likely to weaken digestion and induce costiveness. A little salt may remedy this defect; but what will give to the blood the bone earth, and organized sulphur, phosphorus, and nitrogen, which are indispensable to repair the waste in the bones, muscles, tendons, membranes, nerves, and brain of the system? A very little of the coarse bran may be removed without injury, but the canel should be eaten with the white starch called superfine flour.

In making cheese, nearly all the sugar of milk is lost in the whey. We are aware of the fact that the pigs or cows get this; still we want every housekeeper to know that two quarts of new milk made into a baked Indian, rice, or bread pudding, are worth a great deal more, as food for man, than the milk would be if made into cheese or butter.

If most families would consume a little less butter and fat, and a little more sugar, molasses, or honey, the wants of nature would be better provided for. Be careful never to overload the stomach, nor weaken it by the presence of an indigestible substance. Beware of melons, green corn, unripe fruit, and too much meat, whether salt or fresh. Neither work too hard, nor be guilty of the vice of laziness, under the pretence that you are sick; but study at least two hours each day. Beware of all quacks, whether homœopathic, allopathic, Thompsonian, or what not; but trust much to temperance in all things, and daily ablution of the whole body.—*Genesee Farmer.*

"As, in the high Alpine Mountains, there are beautiful pasture-grounds, in almost inaccessible summits, whither the shepherds bear their lambs in their bosoms, that the sheep may be tempted to go where before they had not strength to go, so the Good Shepherd bears our children to the sunny fields of heaven, that we may gain new fortitude to follow up in the narrow way."

[For the Common School Journal.]

EXTRACTION OF THE CUBE ROOT.

No. 1.

MR. EDITOR; I proceed to submit a few remarks on the extraction of the cube root.

TABLE A.

Numbers.	1, 2, 3, 4, 5, 6, 7, 8, 9.
Cubes.	1, 8, 27, 64, 125, 216, 343, 512, 729.

We see that a cube consisting of one, two, or three figures, will have but one figure in its root.

Again, that the cube of 1 ends in 1, the cube of 2 ends in 8, the cube of 3 ends in 7, &c.

TABLE B.

Numbers.	Cubes.
10,	1000
100,	1000000
1000,	1000000000
10000,	1000000000000, &c.

By this table, we see that a cube containing four, five, or six figures has two figures in its root, &c.

If there be but two figures in the root of a number, one of them must be *tens* and the other *units*.

Let (*a*) represent the tens, and let (*b*) represent the units; the root will be represented by (*a* + *b*); and the number of which this is the root by

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3.$$

That is, the cube of a number consisting of two figures contains,

TABLE C. $\left\{ \begin{array}{l} 1\text{st. The cube of the tens.} \\ 2\text{d. Three times the square of the tens by the units.} \\ 3\text{d. Three times the tens by the square of the units.} \\ 4\text{th. The cube of the units.} \end{array} \right.$

To extract the cube root of a number thus composed, we find first the tens figure of the root, and subtract its cube from the given number. For this purpose, notice that the cube of tens

cannot contain any significant figure below *thousands*; hence, we set off the three right-hand figures of the number, and find the greatest cube in the left-hand period;—take the cube root of this, and write it in the quotient, and, subtracting the cube from the given number, annex to the remainder the last period; the quantity thus formed is the *first remainder*. If this remainder contained only *three times the square of the tens by the units*, we could find readily the *units* by dividing it by *three times the square of the tens*; but it contains other quantities (*C*), and the number obtained by dividing the first remainder by *three times the square of the tens* *may be* too large. This must be determined by trial. The first remainder contains

$$3a^2b + 3ab^2 + b^3;$$

and, having obtained the true or approximate value of the units figure by the above division, we multiply *three times the tens with the units annexed* by the units, and add this product to *three times the square of the tens*; as thus :

$$3a^2 + (3a+b)b = 3a^2 + 3ab + b^2;$$

and now multiplying this last quantity by the units figure of the root, we obtain, if the units figure is not too large, the exact remainder. Should the units figure prove too large, it must be diminished by one, and the above process must be repeated.

We take an example for practice.

$$\begin{array}{rcl} a^3 + 3a^2b + 3ab^2 + b^3 & = & 19.683 \quad (27) \\ & & \underline{\quad 8} \\ (3a+b)b & = & 67 \times 7 = \dots \quad \underline{\quad 469} \quad) \quad \underline{\quad 116.83} \\ 3a^2 + 3ab + b^2 & = & \dots \quad \underline{\quad 1669} \end{array}$$

As the number consists of five figures, there will be two figures in its cube root. (Table B.) The steps of the process of extracting the root are identical with those of the analysis just given. We may remark, that the cube root of perfect powers of not more than six figures, may be determined by mere inspection. The root of the first period may be determined by Table A, and the last figure of the root must be that, of which the last figure of its cube is the same as the last figure of the given number. For example, 140.608, the root of the first period is 5, and 2 must be the last figure, as it is the only one whose cube ends in 8; the root sought, therefore, is 52.

If a number is taken which has three figures in its root, we will call the hundreds a , the tens b , and the units c ; the root will be $(a + b + c)$, and the given number

$$(a+b+c)^3 = (a+b)^3 + 3(a+b)^2c + 3(a+b)c^2 + c^3.$$

Take the number 40353607. There will be three figures in

the root. (Table B.) We find first the *hundreds* and *tens* of the root, precisely as in the example above we found the *tens* and *units*. The cube of the *hundreds plus the tens* will furnish no denomination lower than *thousands*; hence the last three figures may be set off.

$$\begin{array}{r}
 40.353.607 (34 \\
 27 \\
 \hline
 3a^2 = 2700) 13353 \\
 (3a+b)b = 94 \times 4 = \underline{376} \quad 12304 \\
 3a^2 + 3ab + b^2 = 3076 \quad \underline{1049607}
 \end{array}$$

Thus far we have proceeded precisely as in the first example. By consulting the formula above, we see that $3(a+b)^2$ is the next trial divisor, and we may find this by actually squaring 34 and multiplying the result by 3. But there is an easier method. We have already got,

$$\begin{array}{l}
 (1) \quad 3ab + b^2 = 376 \\
 (2) \quad 3a^2 + 3ab + b^2 = 3076
 \end{array}$$

It is evident that if we add (1) and (2) together, we shall have all of $3(a+b)^2$ except (b^2). Hence, by adding (b^2) = 16 to the sum of (1) and (2), we shall obtain the next trial divisor. Hence,

$$\begin{array}{r}
 40.353.607 (343 \\
 27 \\
 \hline
 3a^2 = 2700) 13353 \\
 3ab + b^2 = \underline{376} \quad 12304 \\
 3a^2 + 3ab + b^2 = 3076 \quad \underline{1049607} \\
 b^2 = \underline{16} \quad \underline{1049607} \\
 \hline
 3(a^2 + 2ab + b^2) = 346800 \\
 3[(a+b) + c]c = 1023 \times 3 = \underline{3069} \\
 3(a+b)^2 + 3(a+b)c + c^2 = 349869
 \end{array}$$

We write the 16 beneath the first true divisor, in such a manner that like denominations fall properly with respect to each other; then connecting the last written three rows of figures with a bracket, we add them together, and affix two ciphers to their sum; this forms the next trial divisor, by means of which we obtain the third root figure.

The last true divisor will consist of

$$3(a+b)^2 + 3(a+b)c + c^2,$$

because this quantity multiplied by c will produce a product equal to all which remains of the original number after $(a+b)^3$ has been subtracted from it. In order to obtain this true divisor, we take three times the two root figures first found, attach to this product the third root figure, multiply the whole quantity thus obtained by the third root figure, and add this product

to the last trial divisor; then multiplying this sum by the last root figure, we obtain a product equal to the last remainder.

We take one more example.

	17.073.859.375. (2575
	8
1st trial divisor, 1200) 9073
$65 \times 5 = 325$	7625
1st true divisor, 1525	1448859
25	1349593
2d trial divisor, 187500	99266375.
$757 \times 7 = 5299$	99266375.
2d true divisor, 192799	49
3d trial divisor, 19814700	
$7715 \times 5 = 38575$	
3d true divisor, 19853275	

Should one of the root figures be a cipher, we have only to bring down the next period to the last remainder, and attach two ciphers to the last trial divisor, which thus becomes the next trial divisor.

We may now proceed to give the rule for the extraction of the cube root of integers.

1. Commencing at the right hand, divide the given number into periods of three figures each, as far as practicable.
2. Find the root of the first left-hand period, write it in its place, subtract its cube from the first period, and write the next period at the right of the remainder.
3. At the left of the *first remainder*, write three times the square of the first root figure with two ciphers annexed. Call this the first trial divisor.
4. Find, by means of the trial divisor, the second root figure, which write in its place.
5. At the left of the trial divisor, and a little below it, write three times the first root figure with the second root figure annexed; multiply this number by the second root figure, and add this product to the trial divisor; the sum will be the first true divisor.
6. Multiply the true divisor by the last root figure, subtract this product from the first remainder, and we obtain the second remainder.
7. Write under the true divisor the square of the last found root figure, and connect it, by a bracket, with the two quantities immediately above it; add the three rows thus connected together, and annex two ciphers to their sum; the quantity thus obtained will be the second trial divisor, by means of which find the next root figure.

8. At the left of, and a little below, the last trial divisor, write three times all of the root figures but the last ; to this product annex the last found root figure, multiply the quantity thus produced by the last found root figure, and add this product to the last trial divisor, for a new true divisor ; and proceed as above.

T.

MASSACHUSETTS AND MEXICO. — In the Hon. Waddy Thompson's late and valuable work on Mexico, is the following contrast, all the more powerful from the fact that it is drawn by a southern pen : —

"Mexico was colonized just one hundred years before Massachusetts. Her first settlers were the noblest spirits of Spain in her Augustan age, the epoch of Cervantes, Cortes, Pizarro, Columbus, Gonzalvo de Cordova, Cardinal Ximenes, and the great and good Isabella. Massachusetts was settled by the poor Pilgrims of Plymouth, who carried with them nothing but their own hardy virtues and indomitable energy. Mexico, with a rich soil, and adapted to the production of every thing that grows out of the earth, and possessing every metal used by man, — Massachusetts, with a sterile soil and ungenial climate, and no single article for exportation but ice and rock. How have these blessings, profusely given by Providence, been improved on the one hand, and obstacles overcome on the other ! What is now the respective condition of the two countries ? In productive industry, wide-spread diffusion of knowledge, public institutions of every kind, general happiness, and continually increasing prosperity ; in letters, arts, morals, religion ; in every thing which makes a people great, there is not in the world, and there never was in the world, such a commonwealth as Massachusetts. 'There she is ! look at her !' — and Mexico."

LAZY PEOPLE. — Thanks to Heaven and our ancestors, and to all others who had any hand in making us what we are, — thanks to them, one and all, that we're not born *lazy*. Laziness has been the parent of all the sins that have been committed since the morning of the creation. Eve was in a lazy fit at the time Satan tempted her ; if Adam had kept her busy, she would have been kept out of mischief, and we should all have been as innocent as young lambkins. If the antediluvians had commenced building arks when Noah preached to them, they might all have been saved ; but they were too lazy to work, and so they were all drowned in the great aqueous catastrophe. The reason the Egyptians refused to let the Israelites go, was because they were too lazy to make their own

bricks, and wished to compel the Hebrews to do that work for them. The consequence is known ; they were plagued grievously, and afterwards thrown into the Red Sea. Lazy people, in our own days, are constantly plaguing themselves, and are an everlasting plague and eye-sore to others. The sight of a creeping, listless, indolent man or woman is misery to the thrifty and industrious. — *Selected.*

TAMING EXTRAORDINARY. — There is a little girl, of six years of age, a daughter of Mr. David Thomas, who lives on the borders of the pond which supplies water for the Furnace Works, at Weare River, who has a most wonderful control over a class of animals hitherto thought to be untamable. For a year or two past, the little girl has been in the habit of playing about the pond, and throwing crumbs into the water for the fishes. By degrees these timid creatures have become so tame as to come at her call, follow her about the pond, and eat from her hand. A gentleman went down there, a few days since, with his daughter, to see the little creatures and their mistress. At first, the fishes were mistaken, and came up to the surface of the water, as the gentleman's daughter approached ; but in a moment they discovered their mistake, and whisked away from the stranger, in high dudgeon. Their own mistress then came up and called, and they crowded up, clustering about her hands, to receive the crumbs. She has, besides, a turtle or tortoise, which has been maimed in the leg. This creature lives in the pond, and seems to be entirely under the control of the little girl, obeying her voice, and feeding from her hand. We have just returned from a visit to the pond, and have seen the little bright-eyed girl sporting with her obedient swarms of pickerel, pout, and shiners, patting them on the head, stroking their sides, and letting them slip through her hands. She has her favorites among them. A pout which has been marked on the head in some way, and the turtle we spoke of, are remarkably intelligent. A more beautiful instance of the influence of kindness and gentleness can hardly be found. Lions and tigers have been subjected to man, but this instance of domesticating fishes is as novel as it is interesting.—*Hingham Gazette.*

PRIZES AND EMULATION. — It will be recollected that, at the close of our first school year, prizes were awarded to those pupils who stood highest on the merit rolls. Since that time, the distribution has been discontinued ; and no unfavorable consequences have followed this change.

The motives which are ever present and ever active in the

ingenuous mind, such as a desire to enjoy the approbation of friends and instructors, and eagerness to acquire knowledge, both for its own sake and for the advantages it confers, and the satisfaction arising from the consciousness of complying with the obvious dictates of duty,—all combine to exercise over the pupils a more powerful influence than the expectation of an annual prize. Such incentives to action are far more efficient in laying the foundation of an elevated character.

A generous spirit of competition, that noble spirit which leads the young aspirant forward to emulate examples of excellence, but forbids him to triumph over a rival, has all the encouragement in our schools which is necessary to give it effect.

Merit is by no means unrewarded, though no laurel graces the victor's brow. Around are those approving smiles which are as the warm sunlight to the heart, and within there is that which is more to be prized, than any external mark of distinction.—*Third Report on the Schools of the Second Municipality in New Orleans.*

EXTRAORDINARY STATEMENT.—A comparison of the registers of mortality, says an English paper, will convince us that a hero, placed in the trenches of a beleaguered fortress, where he is exposed for weeks to a continual shower of cannon shot, or placed on a field of battle before the bravest and most resolute of his enemies, has a much better chance of life, runs less risk of a premature death, than if he worked in an undrained street, and slept in a crowded room in Bristol or Liverpool. The chance of life was, at the

Siege of Flushing,	550 to 1
Siege of Antwerp,	68 to 1
Siege of Badajos,	44 to 1
Battle of Waterloo,	30 to 1
Shopkeeping, Liverpool,	19 to 1
Weaving, Manchester,	17 to 1
Saw-making, Shefield,	14 to 1

BRIDGEWATER STATE NORMAL SCHOOL.—The next term of the Bridgewater State Normal School will commence December 1, 1847.

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